

# WBM v.1.0.0: A scalable gridded global hydrologic model with water tracking functionality

## Objective

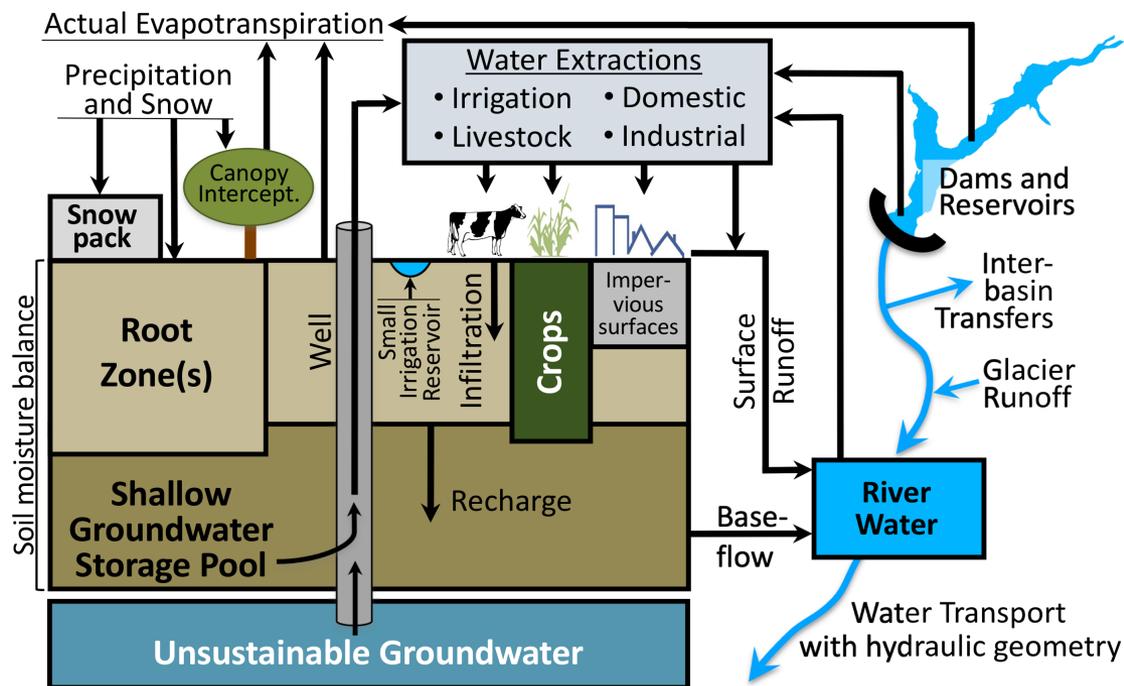
This paper describes the first open-source release of University of New Hampshire Water Balance Model (WBM). This new version adds a novel suite of water source tracking modules that enable analysis of flow-path histories on water supply.

## Approach

In this paper, we provide a detailed description of WBM v.1.0.0, its performance compared to observations of global hydrologic fluxes when using default parameterizations, and examples of how the tracking functionality can be used to evaluate the role of human alterations to the global hydrologic cycle. We review previous studies that have used earlier versions of WBM and provide guidance for setting up and running WBM v.1.0.0.

## Impact

This novel modeling method illuminates previously obscured connections between sources, uses, and fates, as well as offering a potential useful tool for understanding water quality changes throughout watersheds.



**Figure:** Water Balance Model schematic showing major fluxes, storages, and human interventions in the water cycle. The model operates on daily time steps and over grid cells defined by the digital river network. Grid cell resolutions have been used in the range from 30 arc minutes to 120 m.



**PCHES**

Program on Coupled Human and Earth Systems